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New York
Zoological
Society
Twenty-Seventh
Annual Report
1972



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Society**

**Seventy-Seventh
Annual Report**

1972

The Zoological Park, Bronx, New York





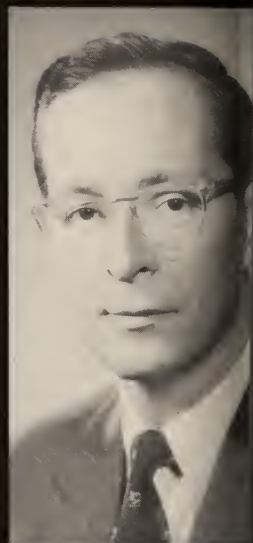
Report of the President

Leadership demands constant effort, and the Society's endeavors during 1972 have sustained our position as a leader in the fields of conservation, education, and research.

The most exciting and significant event of recent years was the opening of the Lila Acheson Wallace World of Birds, an exhibit whose concept and scope make it a milestone in the history of zoological exhibition. During the year, the Society's relationship with the Friends of the Zoo has matured, and with the wholehearted participation of the volunteer Friends, our educational programs have grown to become clearly more advanced than those of comparable institutions anywhere.

The Center for Field Biology and Conservation is now well established. Carrying on the Society's scientific efforts in the tradition of William Beebe are George Schaller and his associates in Pakistan, Nepal, and India, Roger Payne and his students in Patagonia, and Thomas Struhsaker and his associates in three areas that span the African continent along the Equator.

At the Osborn Laboratories of Marine Sciences, Dr. Ross F. Nigrelli retired as Director as of the end of the year, after 38 years with the Society. He will continue his association with the Society as the Laboratories' Senior Scientist. Succeeding him as Director will be Dr. George D. Ruggieri, S.J. The disappointment of losing so distinguished a scientist as Dr. Nigrelli is balanced by our pleasure in being able to find as eminent a successor within our own organization.



During the year the Board of Trustees was strengthened by the appointment of Mrs. Ernesta G. Procope, Mrs. Samuel M. Symonds, and Frederick A. Melhado, and later by the addition of August Heckscher. This is hardly Mr. Heckscher's first association with the Society, however, for he was for several years a member of the Board *ex-officio*, as New York City's Administrator of Parks, Recreation, and Cultural Affairs.

Three distinguished trustees were appointed to the new Board of Advisors. Robert E. Blum, John Elliott, and David Hunter McAlpin have all been long-time Trustees, Mr. McAlpin for three decades (15 years as the Society's Treasurer).

Fiscal problems were especially serious, and all the more troubling because they limit our ability to take full advantage of the opportunities offered by our facilities and of the extraordinary abilities of our staff. There are so many wildlife problems in the world today that it is frustrating to have to limit research and conservation efforts solely because of the lack of funds.

Toward the end of the year, the Board of Trustees initiated a study of the Society's finances. Preliminary reports are developing hopeful new perspectives, which will be further detailed in 1973. One thing is certain, your Society is strong and active, and with your help will continue to meet the challenges of this crowded world.

A handwritten signature in black ink, appearing to read "R. Goelet", with a long horizontal stroke extending to the right.

Robert G. Goelet

Report of the General Director

One day in 1972 an earnest young woman holding a boa constrictor lectured to an intent group of school teachers on the use of the Bronx Zoo in teaching environmental science to elementary school children. On that same day, a tall sea scientist in Brooklyn assessed the opportunities for overcoming a problem in bay pollution for a group of marine ecologists; a sleepless mammalogist in the Bronx kept vigil with a mother gorilla and her first-born; a scientist in Pakistan argued with the local nawab about snow leopard depredations upon goat herds; 22,376 zoo and aquarium visitors watched white whales and Siberian tigers, Cuban crocodiles and sea urchins, and much much more. They were all involved in activities of the New York Zoological Society; a Society whose concern is with the role of biology in the process of human life.

The following departmental summaries can report only fractions of the Society's activities but, diverse as they are, each is characterized by dedication and progress.

Opened on June 16, the World of Birds is the most ambitious and imaginative attempt at exhibiting wildlife ever undertaken at the Zoological Park—an extraordinary reaffirmation of the Society's commitment to New York City. Instantly acclaimed by critics and visitors, it has already attracted professional zoo-men and designers from all over the world. Conceptually, the building followed and elevated the exhibit philosophies of the 1964 Aquatic Birds exhibit, the 1968 Big Bears display, and the 1969 World of Darkness.

In comparison with older buildings, numbers of species and exhibits are reduced, while those displays chosen are greatly enlarged, made more exciting and meaningful for the visitor and far better for their inhabitants. Special effort has been devoted to the esthetics of each display, in the belief that the lessons of beautiful presentations are more likely to be absorbed than those of ugly ones. The building followed, remarkably closely, curatorial specifications worked out in 1961, and was the product of excellent zoo team work with the architectural firm of Morris Ketchum, Jr., and Associates.

In the final analysis, credit for the World of Birds' success belongs with Trustee Lila Acheson Wallace who, while making the exhibit possible, not only supported advanced ideas but also encouraged an experimental approach. Further details of the building may be found in a special issue of *Animal Kingdom* (June 1972).



The World of Bird

**The Center
for Field Biology
and Conservation**

Announced in 1971, the Center for Field Biology and Conservation completed its first full year of activity during 1972. Its essence is a commitment to expeditionary biology and conservation in the Society traditions so well exemplified by the work of the late William Beebe. The Center aims to further its goals in promoting conservation through a continuing program of field study and publication, combined with on the spot involvement in crucial conservation issues. It operates through a cadre of outstanding biologists freed from the usual restrictions of zoo or academic positions. The Center's biologists are concerned with field problems, as opposed to laboratory studies, which present trends suggest may be beyond study or understanding, not to mention remedy, in the near future.

Independence is a keynote of the Center's founding, freedom for each scientist to follow the directions of his studies with as little interruption as productivity and practical support permit. Dr. George Schaller is coordinating the new program, assisted at the Zoo homebase by Donald Bruning and Allegra Hamer.

**1972 at the Zoo
and Aquarium**

1972 at the Aquarium saw the construction of a multitude of minor improvements and the completion of plans for two larger ones, a new Children's Cove and a complete renovation of the Main Hall, both scheduled for early 1973. At the Zoo, planning continued on the forthcoming Tropical Asia Exhibit and upon restaurant renovations. At the same time, a host of improvements were initiated. Sorely needed new electrical power was brought in for the main part of the Zoo; holding areas and barns were completed for the new endangered species exhibit; and the South American complex finally approached completion.

Also at the Zoo, an aerial tramway was installed with opening scheduled for early in 1973. The tramway was chosen over other forms of possible transportation in an effort to keep environmental damage to a minimum. (Only one mature tree was removed over the entire 2,200 foot route.) In contrast to present tractor trains, which must force their way through crowded public paths, the gondolas of "Skyfari" (a name borrowed from a similar tramway at the San Diego Zoo) will run above the trees, largely out of sight.

The effects of continuing inflation hit both Zoo and Aquarium budgets hard in 1972. Rising food costs resulted in greatly over-expended animal food and forage budgets, while continuing City job-freeze actions made necessary the use of additional private funds in

order to fill positions essential to visitor safety and animal health. At best, the Aquarium and especially the Zoo, with so many of its old buildings unimproved, were poorly maintained.

Despite the problems of inflation and the rainiest year in all of New York's recorded history, Zoo and Aquarium attendance was good. With wild creatures declining everywhere, with the proportion of people who even can be permitted to visit wild parks and reserves reduced, all the values of zoos and aquariums are inevitably increasing.

Early in the year, Curator of Publications Emeritus William Bridges began a history of the Society. Mr. Bridges' own association with the Society, more than forty years, spans much of its history. By December, the first six chapters were finished and delightfully engrossing. Hopefully, publication will take place in time to mark the seventy-fifth anniversary of the opening of the Zoological Park, November 8, 1974.

At the end of the year, Dr. Ross F. Nigrelli retired from the directorship of the Osborn Laboratories of Marine Sciences. Associated with the Society since August 1, 1934, Dr. Nigrelli not only founded the Laboratories and developed them to their present prominence, but also carried the directorship of the Aquarium for several years. A scientist of international repute, Dr. Nigrelli will continue to provide the Society with his intellectual contributions and carry on his research in the post of Senior Scientist. Dr. George D. Ruggieri, long associated with the Laboratories and a major contributor to their development, was named Director at the end of the year.

In March, Simon Dresner was appointed Curator of Publications following the resignation of Edward Ricciuti. By year's end, *Animal Kingdom* had been redesigned and public relations programs expanded. John Sutton, the sculptor and painter responsible for the superb background paintings on the World of Birds exhibits as well as much of the artificial habitat work there and at the World of Darkness, was appointed Assistant Curator of Exhibition. Elie Aliman, whose designs have enhanced Aquarium interpretive displays in recent years and who carried through the innovative graphic program in the World of Birds, was appointed Assistant Curator of Graphic Arts. Jerry Johnson, curator of the exhibits department since its inception in 1964, left to establish his own company. He will be missed by his associates at both the Zoo and Aquarium.



William G. Conway

A History of the Society

Personnel

ATTENDANCE 1972

New York Zoological Park	2,446,058
New York Aquarium	715,576

COMBINED CENSUS

	<i>Species & Subspecies</i>	<i>Specimens</i>
Zoo	717	2,868
Aquarium	188	1,286
<i>Total</i>	905	4,154



Orangutan

Department of Mammalogy

Hugh B. House,
Curator

James G. Doherty,
Assistant Curator

Robert A. Brown,
Assistant Curator

Joseph Ruf,
Animal Manager

Mario Rolla,
Assistant Animal Manager

Robert Montana,
Assistant Animal Manager

Grace Davall,
Curator Emeritus

Long-term plans for the establishment of a breeding group of gorillas at the Bronx Zoo began with the acquisitions of two males and two females in 1965 and an additional young male and female in 1966. Upon arrival, all were around two years of age. One male died in 1968, leaving two males and three females to reach maturity. On October 3, 1972, Sukari, the youngest female, gave birth to the first gorilla to be born at the Bronx Zoo.

For the first week Sukari was an excellent mother to her male baby. During the second week, however, her behavior became erratic, and reluctantly, the decision was made to remove the baby for hand-rearing. The baby gorilla, named Hodari, is healthy and doing well under the care of Mrs. F. Wayne King, and there is every expectation that Sukari will prove a capable mother in subsequent births, and that young will also be produced by the other two females.

Tragically, in April, a female orangutan died while giving birth to a still-born infant. The loss of this young breeding female is a serious one, not only to the Zoo's collection but also to the world captive-breeding population. In December, Mambo, a male lowland gorilla, died after 21 years in the Zoo. He was a particularly handsome specimen, despite periodic bouts of an arthritic-type condition that required almost constant medication over the last eight years.

At the end of 1971, the competition between the Zoo staff and Briggs, the male orangutan, detailed in last year's annual report, was at a stalemate. However, 1972 saw Briggs go on to eventual triumph, and he has been banished to other cages until a general overhaul of the "Treetops" exhibit can be made.

Construction and landscaping in the new South American exhibit neared completion, and work continued on the renovation of the old deer range for breeding facilities and exhibits for Mongolian wild horses, wisent, and Pere David deer. Plans for a maternity/holding area associated with the exhibit for brown bears and polar bears was developed, and construction will be completed in time for the 1973-74 winter birthing season.

During 1972, there were 188 births of 53 species of mammals in the

collection. Especially noteworthy, in addition to the gorilla mentioned above, are five Pere David deer, initiating what it hoped to be a vigorous breeding program in the newly expanded range; two baringo giraffes, the first giraffe births since 1962; two Matschie tree kangaroos; several streaked tenrecs; four Siberian tigers; a spectacled langur; two female snow leopards; a Grevy zebra; a wisent; and two red brockets. The department's hoofed animal breeding program continued with many births in several species.

Census

Mammals

Orders	Families	Species &	
		Subspecies	Specimens
Marsupialia —Kangaroos, phalangers, opossums	4	8	27
Insectivora —Moles, shrews, hedgehogs, etc.	2	3	11
Chiroptera —Bats	5	13	32
Primates —Apes, monkeys, lemurs, marmosets, etc.	7	27	109
Edentata —Armadillos, sloths, anteaters	3	5	9
Rodentia —Squirrels, beavers, mice, porcupines, etc.	13	18	51
Carnivora —Bears, raccoons, cats, dogs, otters, etc.	6	39	122
Pinnipedia —Seals, sea lions, walruses	2	2	5
Proboscidea —Elephants	1	2	3
Hyracoidea —Hydrax	1	1	1
Perissodactyla —Horses, tapirs, rhinoceroses	3	5	15
Artiodactyla —Cattle, sheep, antelopes, camels, giraffes, deer, swine, hippopotamuses	8	33	399
Total	55	156	784

Summary: orders, 12; families, 55; species and subspecies, 156; specimens, 784.



White-faced Marmosets



Proboscis Monkey



Mouflon

World of Birds



Golden-Breasted Glossy Starling



Canada Geese



Concave-Casqued Hornbill

Department of Ornithology

William G. Conway,
Curator

Joseph Bell,
Associate Curator

Donald F. Bruning,
Assistant Curator

Robert A. Brown,
Assistant Curator

Andrew Winnegar,
Animal Manager

Eric Edler,
Assistant Animal Manager

Grace Davall,
Curator Emeritus

Ostrom Enders,
Winston Guest, Jr.,

Frank Larkin,
William K. Macy, Jr.,

Charles Webster,
Field Associates

The opening of the World of Birds in June culminated many years of plans, construction work, and exhibit preparation. In the final months, the level of activity in and around the new building reached a point that was almost unbelievable. The huge African display, second largest of the exhibits, took shape almost in a single weekend, when 12 palm trees, each 25-feet tall, arrived from Florida and were planted within a 24-hour period. Every display in the building was planted as soon as the basic decor was completed and the bird collections were introduced shortly thereafter. Shipments of plants and birds were ordered and received as fast as they could be planted and established.

Due to outbreaks of exotic Newcastle disease in many sections of the United States, the Department of Agriculture halted the import of all birds with the exception of those classed as poultry (Anseriformes, Galliformes, and Columbiformes) on August 24. This embargo severely damaged the department's program for adding specimens to round out the displays in the new World of Birds. Exhibits designed to house alpine species and swamp dwellers were the most affected.

Among the many interesting birds received before the ban on importation were two Renault's ground cuckoos (*Carpococcyx renauldi*) from southeast Asia, one of the largest members of that family; two narina trogons (*Apaloderma narina*), a relative of the quetzal of Central America; and two species of spider-hunters (*Arachnothera*), strange members of the sunbird family from southern Asia.

The most important exchanges with other zoos included the acquisition of a male hooded crane (*Grus monacha*), from the Philadelphia Zoo, as a possible mate for a female in the collection since 1966, and the forwarding of a male white-naped crane (*Grus vipio*) to the San Diego Zoo for the same reason.

More than 220 birds of 48 forms were reared in the Society's collection during 1972. Special note must be made of the following, as each breeding listed below represents a first for the Zoological Park: an Amazonian tiger bittern (*Tigrisoma lineatum lineatum*), eight coscorobas (*Coscoroba coscoroba*), an emperor goose (*Anser canagicus*), two brown-breasted hill partridges (*Arborophila brunneopectus*

brunneopectus), and three red-gartered coots (*Fulica armillata*). There is no record of a previous captive breeding anywhere for the last mentioned species. During 1972, 1,606 eggs were entered in the "Egg Log," representing 13 orders, 24 families, and 83 species.

In August, a new type of Society relationship was instituted with the election of several leading aviculturists as Field Associates of the Department of Ornithology. Field associates will be requested to provide advice and counsel to the department, to participate in the review of appropriate avicultural projects and collecting efforts, and to collaborate in ornithological propagation programs. Elected to three-year terms were Ostrom Enders, Winston Guest, Jr., Frank Larkin, William K. Macy, Jr., and Charles Webster.

Curl-Crested Aracari Toucan



Census

Birds

<i>Orders</i>	<i>Families</i>	<i>Species & Subspecies</i>	<i>Specimens</i>
Sphenisciformes —Penguins	1	5	11
Struthioniformes —Ostriches	1	2	3
Rheaformes —Rheas	1	1	17
Casuariiformes —Cassowaries, emus	2	2	8
Tinamiformes —Tinamous	1	3	12
Podicipediformes —Grebes	1	2	2
Pelecaniformes —Pelicans, cormorants, etc.	2	5	20
Ciconiiformes —Hérons, ibises, storks, etc.	4	19	88
Phoenicopteriformes —Flamingos	1	6	48
Anseriformes —Swans, ducks, geese, screamers	2	76	468
Falconiformes —Vultures, hawk, eagles	3	13	38
Galliformes —Quail, pheasants, etc.	3	14	82
Gruiformes —Hemipodes, cranes, trumpeters, etc.	5	23	119
Charadriiformes —Plovers, sandpipers, gulls, etc.	9	37	183
Columbiformes —Pigeons, doves, sandgrouse	1	2	3
Psittaciformes —Parrots, etc.	1	10	29
Cuculiformes —Touracos, cuckoos	2	7	19
Strigiformes —Owls	1	9	21
Caprimulgiformes —Frogmouths, nighthawks, etc.	1	1	6
Apodiformes —Hummingbirds	1	5	11
Trogoniformes —Trogons, quetzals	1	3	10
Coraciiformes —Kingfishers, hornbills, etc.	6	10	24
Piciformes —Barbets, toucans, woodpeckers	4	14	29
Passeriformes —Perching birds	34	104	284
Total	88	373	1,525

Summary: orders, 24; families, 88; species and subspecies, 373; specimens, 1,525



Pope's Pit Viper

Department of Herpetology

F. Wayne King,
Curator

John L. Behler,
Assistant Curator

Robert A. Brown,
Assistant Curator

Peter J. Brazaitis,
Assistant Animal Manager

Walter Auffenberg,
Research Associate, Herpetology

The trend toward decreasing the total number of species and developing larger breeding colonies was continued during 1972. The Egyptian cobras bred and the female deposited a clutch of 23 eggs in April; 15 eggs proved fertile and hatched during the second week of July. This marks the fourth consecutive year of breeding success for this species. In total, the Egyptian cobra female has laid 75 eggs, of which 50 have successfully hatched.

One of the Burmese pythons bred and laid 29 eggs. Unfortunately, these were not successfully incubated. Breeding and hatching were noted for corn snakes and yellow rat snakes. Other births in the collection included four eyelash vipers, a Pope's pit viper, 27 water snakes, 38 blue spiny lizards, and 12 rainbow boas.

Significant reptile additions included a mature African rock python (a gift from the Boston Science Museum), a pair of adult blood pythons, five amethystine pythons, a pair of banded spitting cobras, a large Russell's viper, an Indian gharial, two African dwarf crocodiles, and three bog turtles.

Acquisitions of amphibians during the year included four male Colorado River toads (four females had been acquired the previous year), and five Sonoran green toads for the western rattlesnake exhibit.

Renovation of the crocodilian exhibit pool was initiated during the year, and the riverbank exhibit was completed and decorated by the department. The latter has become one of the building's most successful and most frequently visited exhibits with its large Amazon sideneck turtles and smooth-fronted caimans behaving much as they would in the wild.

Attempts to breed the Chinese alligators and Cuban crocodiles proved unsuccessful. A separation/hormone stimulation/reintroduction scheme was followed in the hope that our breeding record would improve. Improvements in the nesting area behind the Cuban crocodile exhibit and elevation of water within the exhibit should improve chances for breeding this species during 1973.

Eleven confiscated American alligators, which had been received from the U.S. Bureau of Sport Fisheries and Wildlife, and the 10

Dominican Anole



remaining specimens in the Zoo's collection were sent to the Everglades National Park in Florida, where it is hoped that they will contribute to the next generation of wild alligators. The department also sent four Morelet's crocodiles to the Atlanta Zoo where a successful breeding group has been established, and a series of confiscated southeastern United States turtles and snakes were sent to the Savannah River Ecology Laboratory for liberation.

Census

Amphibians and Reptiles

<i>Orders</i>	<i>Families</i>	<i>Species & Subspecies</i>	<i>Specimens</i>
Caudata —Salamanders	3	12	37
Salientia —Frogs, toads	7	21	91
Chelonia —Turtles	6	34	85
Crocodylia —Alligators, caimans, crocodiles	3	20	84
Squamata —Lizards, snakes	16	101	262
Total	35	188	559

Summary: orders, 5; families, 35; species and subspecies, 188; specimens, 559.



Jackson's Chamel



Animal Health



Emil P. Dolensek,
Veterinarian

Consultants:

John Budinger,
Pathology

Ben Sheffy,
Nutrition

Gary L. Rumsey,
Avian Nutrition

Kendall L. Dodge,
Ruminant Nutrition

Robert Byck,
Pharmacology

Jacques B. Wallach,
Clinical Pathology

Edward Garner
Dennis F. Craston,
Ralph Stebel,
Joseph Conetta,

Comparative Pathology
& Toxicology

Harold S. Goldman,
Radiology

Roy Bellhorn,
Paul Henkind,
Alan Friedman,

Comparative Ophthalmology

Lucy Clausen,
Parasitology

Jay Hyman,
Aquatic Mammal Medicine

Theodore Kazimiroff,
Dentistry

Veterinary medicine is defined as the medical science of the diagnosis and treatment of animal diseases and injuries. But while this definition would describe the function of the animal health department of the Society, it does not go far enough to explain the important role of preventive medicine in the care and treatment of animals at the Zoo and the Aquarium.

A major change within the animal hospital during 1972 involved the remodeling of the pharmacy, small animal care room, and surgical treatment room. These changes reflect a general shift toward more individual animal care, as our facilities for group preventive medical programs are now complete. New equipment necessary for surgical or intensive-care monitoring allows the electrocardiogram, electroencephalogram, and temperature to be measured continuously.

Anaerobic and aerobic incubators, additional laboratory cabinets, and a bacteriology hood marked the completion of the clinical pathology laboratory. All parasitology and microbiology are now performed by our technicians in the animal hospital. We will continue to contract for serology, but all other hematology is also performed at the Zoo.

A survey of our primates, including tuberculin tests, blood sampling, and radiography, failed to produce any animals positive for tuberculosis. The tuberculin testing of appropriate animals on their arrival or departure from the collections should be an adequate monitor for this disease. The quarantine of most animals entering the Zoo and Aquarium collections is routine, and the treatment for parasites, abscesses, etc., during this period has proved to be very successful in decreasing mortality.

A serious outbreak of amoebiasis in the reptile collection resulted in greater efforts to diagnose and control this organism. The quarantine procedure for all reptiles now includes hematology and a cloacal washing. Animals found to be positive for amoebae are now treated before entering the collection. Animals already within the collection are being treated according to data obtained from experimental studies done at the Zoo.



Studies on lead contamination in the collections have been completed; results show only felines and primates with high blood and tissue levels of lead. An oral drug used once weekly produced a cure for ringworm infections in snow leopard and lion cubs. Previous attempts at treating this condition had been unsuccessful. In addition, vaccinations were performed on all specimens of the following families: Felidae, Canidae, Viveridae, Procyonidae, and Mustelidae.

Anesthesia or immobilization of a variety of specimens was without a single mortality during 1972; 156 mammals, 24 reptiles, and 12 avians were subjected to surgery, crating, or examination, using five different drugs. Surgical procedures included repairs of lacerated corneas, biopsy, tumor removal, numerous fracture repairs, gastrotomy, intestinal anastomosis, enucleation of an eye, correction of dystocia, and caesarean section.

During the year, various consultants in animal health worked at the Zoo and Aquarium. The analysis of bird and reptile diets with Dr. Ben Sheffy, a consultant in nutrition, has resulted in minor changes of these diets. We continue to look for a better balanced ration for our hooved animals that will improve the general condition of these animals.

Dr. Roy Bellhorn of Montefiore Hospital has continued to consult with us on clinical cases involving eyes and has also begun some original work on the function of the pecten in the avian eye. Dr. Lucy Clausen has completed work on parasitology of large primates and their response to treatment, and she has also continued her project on avian parasites and amebiasis in reptiles.

Dr. Bruce Oberhardt of Montefiore Hospital has discovered that the blood from white whales is useful in the diagnosis and treatment of certain types of human autoimmune diseases, and he continues to explore further relationships. Dr. Sidney Werner of Columbia Presbyterian Hospital began a project to study thyroid function in various species of different ages, which may shed some light on special medical problems for treating certain animals.

Yearly totals show 832 necropsied specimens, 971 fecal specimens, 376 hematology reports, and 396 bacteriology reports.

White Whales



Smooth Trunkfish



Tarpon



Seahorse



White Whale

New York Aquarium

James A. Oliver,
Director

Stephen H. Spotte,
Curator

H. Douglas Kemper,
Assistant Curator

Lars Mellkvist,
Superintendent, Operations

Richard Marnell,
*Assistant Superintendent,
Operations*

Thomas Leong,
Assistant Manager, Facilities

Charles Young,
Animal Manager

Louis Mowbray,
*Research Associate,
Field Biology*

Christopher W. Coates,
Director Emeritus

In the annals of the New York Aquarium, 1972 will be known as the "Year of the Baby Whales." The first baby whale was a white whale or belukha (yes, *belukha*, as we have recently learned that this is the more proper and widely-used vernacular name for this species). On July 22, 1972, the first whale of any species to be bred in captivity was born to Blanchon and Frances, the pair of white whales in the Aquarium's whale tank. After birth, the 200-pound baby swam beside its mother for awhile, but unfortunately it did not survive. However, we now know that it is possible to breed whales in captivity and Frances is being closely watched, so that if she should show signs of future motherhood, every precaution will be taken to protect the health of mother and baby.

In September the Aquarium received a baby female pigmy sperm whale that, with its mother, had been washed ashore. The mother died the next morning, but the baby was unharmed and seemed to respond to our attention. Although it was necessary to force-feed the youngster around the clock, it all seemed worthwhile when the youngster began to respond and gain weight.

The baby pigmy sperm whale attracted more public interest and attention than any other animal the Aquarium has ever had. We received numerous get-well cards, drawings from school classes, telephone calls, donations, and attention from the media. Such was the baby's appeal that our attendance for the first full week in October was exactly double the figure for the comparable period in 1971. Unfortunately, after one month, the youngster contracted a viral disease and died. No other pigmy sperm whale had ever survived in captivity for so long.

During the year, the viewing area of the Shark Tank was enlarged; new seats were added to the Whale-Dolphin show area, increasing the total number of seats to 750; new construction was started for the freshwater fish exhibit; the Beebe-Barton bathysphere was moved to a new location; and work was begun on a new Children's Cove exhibit. Plans were completed for the renovation of the principal fish exhibits in the Aquarium's main hall, which will provide natural habitat exhibits on the north wall and exhibits illustrating biological principles on the south wall.

The impact of the education department at the Aquarium was increased with the addition of two full-time instructors provided through a grant from the New York State Council on the Arts and the help of 20 adult docents. Among the educational highlights of 1972 was the preparation and installation on the Boardwalk side of the Administration Building of a sea-life mural, 132 feet long and 16 feet high, prepared by the elementary school children of Brooklyn. Sponsorship of this activity was provided by the Brooklyn Arts and Cultural Association, Abraham and Strauss, and the Pratt Institute.

Several junior docents who are certified scuba divers gave daily demonstrations during the summer months of some of the local flora and fauna to be found on the nearby sea jetties. In all, 60 junior docents from John Dewey High School worked at the Aquarium giving gallery tours, lectures on the exhibits, and story-hour programs. The numerical indicators of the extent of the educational program and the number of individuals involved are given in the section on the Department of Education.

Census

Aquarium

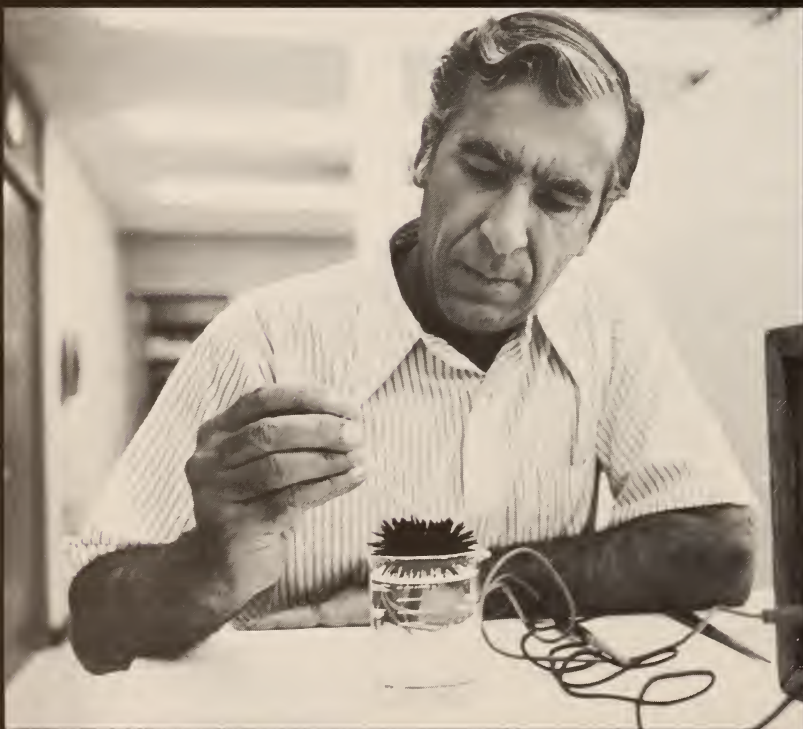
	<i>Species & Subspecies</i>	<i>Specimens</i>
PHYLUM: Chordata		
CLASS: Chondrichthyes (Sharks, skates, rays and chimeras)		
<i>ORDERS</i>		
Heterodontiformes —Horned sharks	1	1
Squaliformes —Typical sharks	1	3
Rajiformes —Skates, rays	3	3
CLASS: Osteichthyes (Bony fishes)		
<i>ORDERS</i>		
Acipenseriformes —Sturgeons	1	1
Semionotiformes —Gars	3	12
Amiiformes —Bowfins	1	2
Elopiformes —Tarpons, bowfishes	1	4
Anguilliformes —Eels	9	11
Cypriniformes —Minnows, piranhas, blind cavefishes	7	40
Siluriformes —Catfishes	2	2
Batrachoidiformes —Toadfishes	1	12
Lophiiformes —Frogfishes	1	1
Gadiformes —Codfishes	1	1

Atheriniformes —Topminnows, killifishes, silversides	2	53
Beryciformes —Squirrelfishes, soldierfishes	2	26
Gasterosteiformes —Sticklebacks, pipefishes, sea horses	2	19
Perciformes —Perch-like fishes	68	206
Pleuronectiformes —Flounders	1	2
Tetraodontiformes —Triggerfishes, puffers, cowfish, trunkfishes	2	3
CLASS: Reptilia (Reptiles)		
ORDER		
Chelonia —Turtles	5	13
CLASS: Aves (Birds)		
ORDER		
Sphenisciformes —Penguins	2	22
CLASS: Mammalia (Mammals)		
ORDER		
Pinnipedia —Seals, sea lions	4	17
Cetacea —Whales, dolphins	2	6
PHYLUM: Porifera		
CLASS: Demospongiae (Siliceous, horny sponge)	1	150+ colonies
PHYLUM: Coelenterata		
CLASS: Anthozoa (Anemones, coral)	16	340+
PHYLUM: Annelida		
CLASS: Polychaeta (Types of marine worms)	1	6
PHYLUM: Arthropoda		
CLASS: Crustacea (Lobsters, shrimps, crabs)	20	140+
CLASS: Arachnida (Horseshoe crabs)	1	15
PHYLUM: Mollusca		
CLASS: Gasteropoda (Snails)	11	50+
CLASS: Pelycopoda (Oysters, clams)	4	50+
CLASS: Cephalopoda (Octopodes, squid)	1	2
PHYLUM: Echinodermata		
CLASS: Asteroidea (Sea stars)	7	50+
CLASS: Echinoidea (Sea urchins)	3	11
CLASS: Holothuroidea (Sea cucumbers)	1	12
Total	188	1,286+



Horseshoe Crab Research

Sea Urchin Research



The Electron Microscope



Osborn Laboratories of Marine Sciences

Ross F. Nigrelli,
Director & Pathologist

George D. Ruggieri, S.J.,
*Assistant Director
& Coordinator of Research*

Martin F. Stempien, Jr.
*Assistant to the Director
& Bio-organic Chemist*

Jack T. Cecil,
Virologist

Paul J. Cheung,
Microbiologist

Joginder S. Chib,
Chemist

Kenneth Gold,
Marine Ecologist

Myron Jacobs,
Neuroanatomist

Klaus D. Kallman,
Fish Geneticist

Kathryn S. Pokorny,
Electron Microscopist

Eli D. Goldsmith
Scientific Consultant

Erwin J. Ernst,
*Research Associate,
Estuarine & Coastal Ecology*

Martin F. Schreiberman,
*Research Associate,
Fish Endocrinology*

Marine organisms have taught man a lot about himself. The discovery that the pugnacious-looking anglerfish lacks glomeruli, the primary filtering units in the kidney, has led to significant finds on how man's glomeruli-rich kidneys function. The common squid, whose jet-propulsion mode of locomotion requires instantaneous and synchronous nervous coordination, has single nerve fibers large enough to be visible to the naked eye. Much of the knowledge on how nerves function has been derived from studies on these giant axons of the squid. And toxins from certain marine animals such as the pufferfish act so specifically that they are used as molecular probes in elucidating normal nerve and muscle physiology.

Researchers at the Osborn Laboratories of Marine Sciences have been studying a host of other marine organisms in an effort to learn more about us by understanding them. Dr. Ross F. Nigrelli and Dr. George D. Ruggieri, S.J., have been investigating a group of animals known as echinoderms (sea stars, sea urchins, sea cucumbers). These animals, noted for their ability to regenerate lost parts, contain a variety of interesting chemical substances. Some of these substances are capable of destroying cancer cells grown *in vitro* and in irreversibly blocking nerve impulses.

Primitive sponges are known for their high survival rate, and studies on their chemical make-up by Dr. Martin F. Stempien, Jr., and Dr. Joginder Chib have uncovered substances that are potent anti-bacterial and anti-viral agents. Barnacles, notorious relatives of delicious crabs and lobsters, have been the nemesis of ocean-going vessels since man first ventured into the sea. Studies by Dr. Paul J. Cheung are geared to identifying the chemical makeup of the adhesive material by which barnacles adhere to ships. This cement may prove to be extremely useful as an underwater glue and for use in dental restoratives.

A significant key to an understanding of changes that occur in the sea are the one-celled organisms. Dr. Kenneth Gold has devised a semi-automatic method for maintaining a number of these cells under laboratory conditions for extended periods. These organisms play important roles as grazers, as nutrient regenerators, and as food for the

larger animals in the sea. Some are sensitive indicators of pollution. The one-celled organisms which are responsible for "red tide" outbreaks are being intensively studied. Dr. Gold and Dr. Kathryn Pokorny are studying the ultrastructure of these organisms under the electron microscope. Thus, changes in the size, shape, and position of the minute components of the cell may provide clues which will unravel the mystery of their "bloom" mechanism.

Many organisms in the ocean are important to man because they are part of the food chain that leads back to man. Dr. Jack T. Cecil is studying the fate of land viruses that find their way into the ocean on a variety of marine organisms, including edible clams and fishes. A number of these viruses may be pathogenic and, therefore, are potential public health hazards.

The freshwater platys and swordtails with which Dr. Klaus D. Kallman works are the fruit flies of the aquatic world. Genetic studies have shown that melanoma (pigment-cell cancer) is inherited in these animals. More recently Dr. Kallman has shown that the size of the males is genetically controlled. Small fish become sexually mature months before the larger fish. Development of the testes is, however, under the control of the pituitary gland. Microscopic examination of this master gland has revealed that the cells that produce the gonad-stimulating hormone mature earlier in the small fish than in the large ones. Thus the size gene is in reality a pituitary gene which governs the age at which the gonad-stimulating hormone becomes active. Size differences, therefore, are merely secondary effects of the pituitary gene. Other indirect effects produced are skeletal dimorphism (lack of a sword in small fish), early activation of certain enzymes, development of color patterns, food consumption, and even prey-predator relationships. In some cases the two types of males bear little resemblance to one another. The late-maturing males, therefore, are not merely larger copies of the smaller ones but assume a completely different appearance. These experiments vividly demonstrate how, during the course of evolution, a single gene can control the sudden appearance or disappearance of a rather prominent organ such as a sword.

It is just such studies that are a necessary prelude to successful mariculture methods. Genetically-selected stocks of commercially important fish will assure hardy, disease-resistant, and highly productive fish.

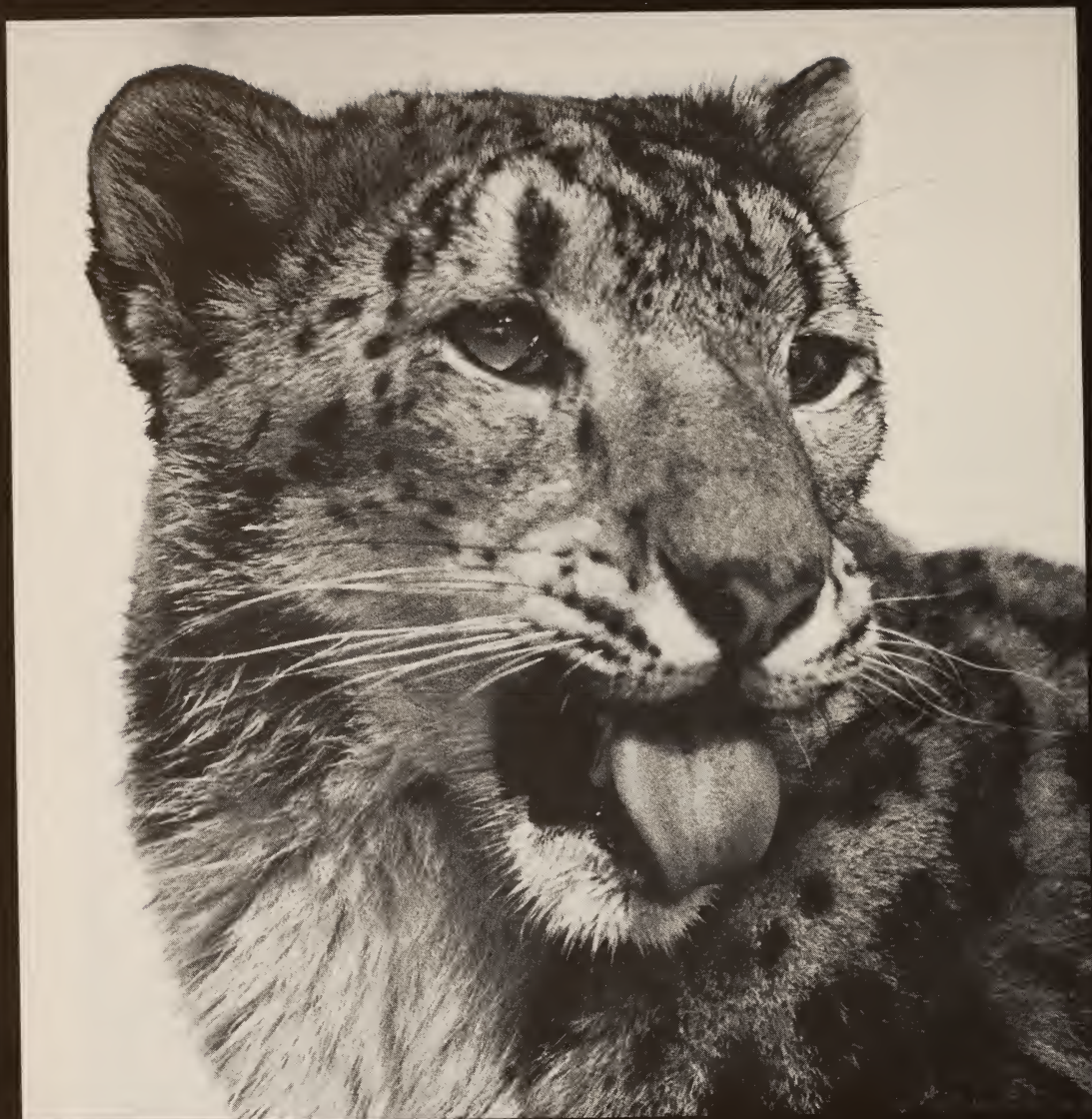
Despite increased interest in whale ecology and conservation, the behavioral patterns of most species of whales are poorly understood. Dr. Myron Jacobs has accumulated fundamental data about the behavioral activities of these animals by quantitatively analyzing certain key neural systems underlying vision, audition, feeding, and sound generation. These studies indicate that baleen whales (fin whale, humpback whale, right whale, etc.) have a more highly developed

visual system than toothed whales (dolphins, sperm whales, belukhas, etc.). However, toothed whales, as a group, have a better developed auditory system and a greater capacity to generate and manipulate sounds than do the baleen whales.

Approximately 80 per cent of all living organisms are aquatic. Yet a great deal more is known of land forms than about marine animals and plants. New and significant advances are now being made through studies on marine organisms. Finally, we have come full circle. The ancient past belonged to the sea, because that is where it all began; and the future appears bright with the promise of fascinating discoveries.

Platyfish





Snow Leopard

Center for Field Biology and Conservation

George Schaller,
*Research Zoologist and
Coordinator*

Roger Payne,
Research Zoologist

Thomas T. Struhsaker,
Research Zoologist

Donald F. Bruning,
Research Associate

Robert M. Beck,
Research Fellow

On January 1, 1972, the Society undertook a new venture—but one firmly rooted in its traditions—with the formal establishment of the Center for Field Biology and Conservation, with a grant from the Scaife Family Charitable Trusts. During the year, members of the Center were scattered over four continents, preparing valuable data for publication and/or conducting field research.

Dr. George Schaller continued his work on high-altitude mammals in Asia. In the Kang Chu valley of eastern Nepal, he studied the biology of the Himalayan tahr and the blue sheep. Several weeks were devoted to observing a tahr population on the walls of a 3,000-foot deep gorge. Having studied Nilgiri tahr in southern India, Dr. Schaller was interested in a comparison of the two species. The blue sheep, which inhabits the upper valley above an altitude of 13,000 feet, is particularly fascinating. This species has physical characteristics that are typical of both goats and sheep, and taxonomists have argued about its phylogenetic position for years. Although the blue sheep looks like a sheep and lives in the terrain usually occupied by sheep, it is closely allied to goats in its behavior, as this study indicated.

In Pakistan, Dr. Schaller concentrated his observations of wild sheep and goats on three species—the rare Punjab urial sheep, the wild goat, and the Kashmir markhor goat. By studying selected populations at all seasons over several years in areas where the animals are still fairly abundant, he hopes to collect data on trends in number factors influencing birth and death rates, changes in food habits, movements, and various other aspects of behavior.

In the Kibale Forest of Uganda, Dr. Thomas Struhsaker continued his systematic observations on food habits, movements, and intragroup social behavior of a group of red colobus monkeys. The group averaged 20 animals in number over a period of 20 months. The same three adult males remained with the group the whole time and the female membership of the group was also stable. These and other observations indicate that red colobus groups are more stable than, for example, vervet monkey and baboon groups.

Intensive field work in red colobus and black-and-white colobus

ceased in March. However, that same month marked the beginning of at least a one-year study of the mangabey in the same area and in August Dr. Struhsaker began work on the red-tail monkey and the blue monkey. This project of five monkey species in one area will provide a better understanding of rainforest ecology, interspecific relations, and correlations between ecology and social organizations.

Dr. Roger Payne returned to Argentina to continue his research on the behavior of southern right whales. Whales are abundant in his study area, as in previous years, and he has been obtaining data on how whale sounds correlate with various types of behavior. As each right whale has on its head distinctive markings, which seem to change little over a period of at least 15 months, Dr. Payne is able to recognize individuals in his study area and he may be able to trace certain animals during their migrations.

During the year, Dr. Payne also went to Bermuda to continue his studies of the intensity of humpback whale songs and the changes in these songs that seem to occur from year to year. Bad weather and few whales made work difficult, but Dr. Payne was still able to record a large sample of songs which appear to be again different from those recorded in previous years.

Robert Beck, a research fellow with the Center, began his studies of crocodilians. Adult calls of two species and juvenile calls of 13 species were tape-recorded at the Bronx Zoo and Grant Park Zoo in Atlanta. Using the facilities at the Rockefeller University, he is making sonagrams of these calls to find out what kind of intra- and interspecific differences exist.

Mr. Beck also conducted a field study of the American alligator in South Carolina, where he observed and photographed nests, eggs, and the young at the time of hatching. Although crocodilians seem to have achieved the highest development of parental care and social organizations among reptiles, little is known about these aspects of their behavior. Mr. Beck's observations on alligator behavior, particularly concerning the opening of the nest and release of the young by the parent and on the social interactions of hatchings, may show what social conditions are essential to the survival of young during their first vulnerable days of life.

Conservation Committee

Charles W. Nichols, Jr.,
Chairman

Mrs. Vincent Astor

Henry Clay Frick II

Robert G. Goelet

Gilbert M. Grosvenor

Peter Matthiessen

G. W. Merck

Howard Phipps, Jr.

Laurance S. Rockefeller

David T. Schiff

Joseph A. Thomas

Landon K. Thorne, Jr.

Staff of

the Zoological Society:

William G. Conway

Joseph A. Davis

Hugh B. House

F. Wayne King

Harold C. Palmer

Roger S. Payne

During 1972, the Society provided complete or partial support for the following projects. All of these efforts were made possible by the Society's restricted conservation funds and by generous donations.

72-001 Falcon survey by Dr. Stan Temple

72-002 Polar bear conference for the International Union for the Conservation of Nature and Natural Resources, Morges, Switzerland

72-003 Study of the Kirtland's warbler by Dr. Bruce E. Radabaugh

72-004 African conservation film production by Abbott and Fuller

72-005 Hornaday Award Program of the Boy Scouts of America

72-006 Grant request to the International Union for the Conservation of Nature and Natural Resources

72-007 Support of the Jackson Hole Biological Research Station

72-008 Publication of papers of the Golden Marmoset Symposium

72-009 Study for a green turtle reserve by Dr. Walter Auffenberg

72-010 Research on the right whale by Dr. Roger Payne

72-011 Conservation film on the Andean condor by Jerome McGahan

72-012 Study of the morphology and population status of the Morelet's crocodile by Dr. F. Wayne King and Dr. Howard Campbell

72-013 Publication of monographs on the giant sable and the wildebeest by Dr. Richard Estes

72-014 Study of the Indian rhinoceros in Nepal by W. Andrew Laurie

72-015 Study of African rain forest ecology by Dr. Thomas Struhsaker

72-016 Study of the nesting ecology of the Nile crocodile by Dr. Hugh Cott

72-017 Crocodile survey in East Africa by Dr. F. Wayne King

72-018 Study of the population status and ecology of the South American flamingo by Dr. M. Philip Kahl

72-019 Grant to the Delta Waterfowl Research Station



Hermit Crab

Department of Education

James W. Waddick,
*Assistant Curator in Charge
of Education*

Herbert J. Knobloch,
*Curator, Audio-Visual Services
and Community Affairs Officer*

Robert A. Brown,
*Assistant Curator
(Children's Zoo)*

Karen Hensel,
Aquarium Zoology Specialist

Patricia Gowaty,
Zoology Specialist

Annette Berkovits,
Frederick Biolchini,

Douglas Dixon,
Evelyn Kravath,
Barbara Reissman,
Zoology Instructors

At the Bronx Zoo the education department now numbers nine full-time staff members plus three New York City district coordinators and 149 volunteer Friends of the Zoo. Aquarium education is represented by three professional staff members, 20 adult docents, 60 junior docents, and a New York City district coordinator.

Over 300,000 students were admitted to the Bronx Zoo during 1972 in school groups. In order to make each visit more meaningful, new policies were introduced to regulate the number of school groups entering the Zoo on any one day. A more even distribution in student attendance has developed, with relatively more visits in fall, winter, and early spring.

Traditional educational programs remained popular, with 351 classes given for over 10,500 students. New programs were established, including special classes for blind and partially-sighted elementary grade children. Special supplementary classes for the curriculum, "Man: A Course of Study," were given for almost 2,000 fifth-graders, and junior high school and high school "Zoo-ology" courses were developed. A new category of Special Topics Programs was able to handle a diverse array of classes, concepts, and multi-media presentations for all grade levels. Fifteen summer courses attracted hundreds of participants, including senior citizens and adults. All of these special programs reached an additional 4,500 students. Teacher training also continued, with the forty-fourth and forty-fifth In-Service courses.

Volunteer training courses completed instruction for almost 100 qualified guides to assist at the Bronx Zoo, Central Park Zoo, and the Lehman Children's Zoo (Central Park), including both weekday and weekend programs. The Friends of the Zoo volunteers gave almost 200 tours of the Bronx Zoo during 1972 to nearly 6,000 children, thus nearly tripling the previous year's efforts.

Over 166,000 students visited the New York Aquarium in school groups, and all of them had reservations or appointments. Education programs were given to about 4,000 students, plus 1,000 more on tours. The 60 junior docents trained this year were able to accommodate over 15,000 more visitors for tours, beach walks, lectures, and story hours.



Rabbit in Children's Zoo

The Children's Zoo

Children's Zoo attendance for 1972 broke all records. A total of 403,763 persons passed under the entrance bridge during the season from March 29 through November 7. This was a gain of 15 per cent over 1971, and surpassed the previous record of 384,123 persons set in 1951.

A new exhibit area was set up for large terrestrial invertebrates, including a demonstration—at the push of a button—of fluorescence in scorpions. New stainless steel cages were installed for the collection of classroom animals, and a new yard was constructed for “Daisy,” a Jersey heifer.

A traveling exhibit of sensory boxes—look, listen, touch, and smell—was designed and built to be used at fairs and Society members' events. The sense of taste was demonstrated for the first time, using exotic honeys from around the world.

The educational programs for day care centers were expanded in scope and made available to centers in Westchester, as well as New York City. In addition to classroom animal projects, the course materials included visits to zoos and aquariums and nature study in parks and vacant lots. Special tours of the Children's Zoo were made available to day care classes.

On December 1, the pony barn and animal riding track were placed under Children's Zoo management, and plans were made for operating both facilities with a single staff. A major effort to develop a work study program for student interns was begun, based on increased use of DeWitt Clinton students. In addition, a new program of exhibit construction was started with the high school carpentry class at the Southern Westchester Bureau of Cooperative Educational Services.



Department of Exhibition and Graphic Arts

Jerry M. Johnson,
Curator

John C. Sutton,
Assistant Curator,
Exhibition

Elie Aliman,
Assistant Curator,
Graphic Arts

All members of the department of exhibition and graphic arts were involved in the final preparation of the exhibits and the graphics for the World of Birds during the first six months of 1972. Although the major exhibition work in the building had already been completed by the start of the year, the final touches had the exhibition crew working right down to the official opening day.

Using drawings by Tomi Ungerer, an internationally-known artist, the graphics for the building were designed to complement the live exhibits. Mr. Ungerer's satiric, humoristic approach was applied to contemporary issues, such as pollution and overpopulation, and to scientific information, such as "what is a bird?" and "how to pick a pet." In addition to the graphics, a "logo" and a brochure for the World of Birds were designed, and the latter was awarded a certificate as "an outstanding example of design and printing produced during 1972" by the Printing Industries of Metropolitan New York.

After the World of Birds opened to the public in June, the graphics section of the department turned to the redesign of the Main Fish Hall of the Aquarium. The problem was to alleviate a cramped viewing situation and to create the illusion of infinite space. New graphics also had to be developed for the exhibit area and special light boxes designed for their display. A new labeling system for exhibits was designed in a cooperative venture with the Montreal Aquarium.

The exhibition section of the department completed the year with various projects. Modifications were made in the mandrill exhibit in the Monkey House and in the bat cave in the World of Darkness. The crew also worked on the restocking of basic rock forms in fiber glass, based on the rubber molds from the Palisades; these rock forms will be used in various exhibits at the Zoo and the Aquarium, as needed. Casts in cement were also completed of tiles for the entrance lobby of the Reptile House, and work was begun on the renovation of the Main Fish Hall for the Aquarium, which will be the first major project of the new year.

Construction and Maintenance

Charles B. Driscoll,
Superintendent of Operations

George Russell,
*Assistant Superintendent
of Construction*

Louis Sanders,
*Assistant Superintendent
of Maintenance*

For the first half of the year, the construction and maintenance departments concentrated on preparations for the June 15 opening of the World of Birds. The work in the new building entailed installation of sprinkler systems and drains, and the construction of quarantine cages, brooding rooms, a workshop, and a kitchen. Countless smaller tasks were also required from filling planting pockets to the installation of graphics and labels.

Work continued on the major redevelopment of the deer ranges for exhibiting and breeding endangered hooved stock. The area runs from north of the Zebra House to near Fordham Road. At year's end three large barns, a feed shed, and wood plank corral fencing were completed.

Other major projects for the year included alterations and improvements to the Children's Zoo, Penguin House, Reptile House, and old Kangaroo House.

Contracts were let by the Society for the construction of a 2,200 lineal-foot sky ride, which will run from the north end of the Crotona Parking Field to east of the African Plains. It consists of a drive, tension, and storage building for the 52 gondolas. Six towers ranging in height up to 110 feet support the cables. The sky ride is scheduled to be completed during 1973.

A contract was also awarded for the construction of a new pedestrian entrance on Southern Boulevard between 184 and 185 Streets. This new entrance will provide more efficient operations at the gates.

Publications and Public Relations

Simon Dresner,
Curator and Editor

Joan Van Haasteren,
Assistant Curator

Dorothy Reville,
Photo Librarian

Sam Dunton,
Photographer

William Meng,
Photographer

Arline Schneider,
Librarian

William Bridges,
Curator of Publications
Emeritus

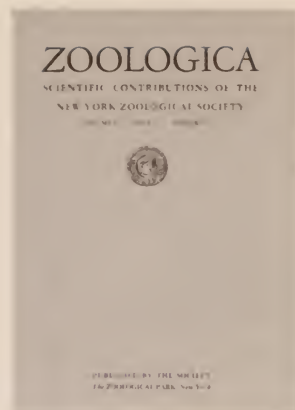
While other departments spent the first six months of 1972 putting the finishing touches on the Lila Acheson Wallace World of Birds, the Department of Publications and Public Relations began its task of introducing the new building to the press and public. The June issue of *Animal Kingdom* was a special publication on the World of Birds. A press kit was prepared with seven releases and nine photographs on the building and its exhibits, and contacts were made with the media for a press preview prior to the public opening on June 16. The result was a flood of publicity on the World of Birds that lasted throughout the remainder of the year (including a major article in the December *Reader's Digest*) and that shows no sign of decreasing during 1973.

The major news story at the New York Aquarium was actually three stories, and all about whales. The interest in the large marine mammals began in April when the Aquarium moved one of the white whales, Ethel, to the Polar Bay Exhibit, where she joined Alex, the star performer of the Whale-Dolphin Show. This move left Blanchon and Frances alone in the large Whale Tank, where in July, the first baby whale to be bred in captivity was born; unfortunately the youngster did not survive.

By now sufficiently whale-conscious, the public and press responded overwhelmingly to the final whale story, a gallant struggle for survival by a baby pigmy sperm whale. In September, the youngster and its mother were washed ashore and taken to the Aquarium. The mother died the next morning, but the baby, attended around the clock by Aquarium personnel, lived for a month before succumbing to a viral infection. It was the longest time any whale of this species had survived in captivity.

With the February 1972 issue of *Animal Kingdom*, full color appeared in the inside pages of the magazine on a regular, continuing basis. An entirely new design involving typography, layout, and art, made its appearance in the August issue and received an enthusiastic reception. The first issue of the year had six pages and seven photographs in color. By the December issue the count had increased to 11



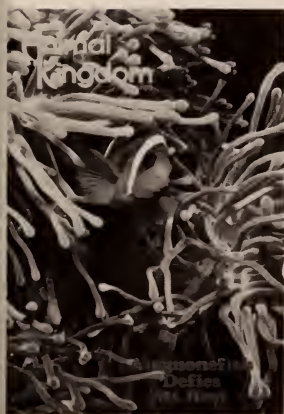


pages and 20 photographs. The addition of inside color to the magazine received enthusiastic approval from the readers.

During the year promotional pamphlets on the Zoo and the Aquarium were printed and a distribution program throughout the metropolitan area was started. Large posters were also designed for display in railroad and bus stations, and sightings of the hornbills from the Zoo's World of Birds and the white whale from the Aquarium were reported from the city and suburbia.

Television and radio spots were produced for public service programming on stations in the area. At the end of the year, arrangements were made with a major New York City advertising agency for new television commercials, and an integrated publicity program for the Zoo, the Aquarium, and *Animal Kingdom* was initiated.

For its many activities during 1972, as in the past, the Society relied upon the photographic sections of the department. The year also witnessed the continuing growth of the library, as it increased its services to the Society, its members, and the public.





In the World of Birds

Membership

Harold C. Palmer,
Chairman

During the year, membership showed interesting growth; the total number as of December 31, stood at 7,001, an increase of 454 members over the number for 1971.

Among the special members' activities for 1972 was a "first" for the Society; Children's Day, held at the Bronx Zoo on September 5, attracted more than 1500 members and their children. The highlight of the afternoon was "Peter and the Wolf," performed by the New York Summer Festival Orchestra, under the direction of Louis Simon, and narrated by Joseph A. Davis. The star of the show, however, was a live wolf, which by its presence countered any anti-wolf sentiment that the story of Peter and his friends might have temporarily produced.

The Society's safari to the jungles of Borneo was quickly oversubscribed and 21 members joined Dr. F. Wayne King to share a once-in-a-lifetime experience, including a stay in a longhouse of a Dyak tribe and river transportation in dugout canoes.

Jackson Hole Biological Research Station

A successful activity program for 1972 included seminars by visiting scientists, cooperation with high school student groups conducting science programs in the area, continued cooperation with the Park Service biologists on research problems of mutual concern, and the following research investigations, of which six* received grants from the New York Zoological Society:

L. Floyd Clarke,
Director

Margaret Altmann

Comparative study of communications in big game

R. Owen Asplund

Physiologically-active natural products from native plants of the Family Compositae

Alan A. Beetle

The ecology of aspen

Robert C. Bergstrom

Parasites of ungulates in the Jackson Hole area

Franz J. Camenzind*

Ecology and behavior of the coyotes in Jackson Hole

Brenton Costain*

The uinta ground squirrel in Jackson Hole: a comparison of two populations in different habitats

John W. Huckabee

Collecting moss in the Gros Ventre Mountains for mercury analysis to include a study of monitoring mercury in the environment

Frederick J. Jannett, Jr.*

Social dynamics of the montane vole, *Microtus montanus*

Janice Jannett*

Behavior and population dynamics of *Eutamias amoenus*

Ellis G. MacLeod

Study of feeding and reproductive activities of lacewings which occur in Jackson Hole

Gordon A. McFeters*

Microbial studies of a high alpine water supply used for recreation

Glenn A. Noble

Stress and snail trematode larvae

Michael Parker

Strategic analysis and phytoplankton ecology

Aelita J. Pinter*

Effects of environmental variables on some physiological responses
of *Microtus montanus* under natural conditions

Frank B. Salisbury

Photography of wildlife and plants of the area for natural history
study

John F. Sutton

Paleontology of the Colter Formation in Jackson Hole

Gary A. Wright

Archaeological survey of Grand Teton National Park

Wapiti at Jackson Hole



Financial Statements

BALANCE SHEET

December 31, 1972

Exhibit A

	Current funds		Unexpended	Land, buildings, animals and equipment funds	Equity in land, buildings, animals and equipment	Endowment funds and funds functioning as endowment
	General	Restricted				
Assets:						
Cash	\$ 557,007	25,050	9,570	-	-	56,727
Accounts receivable	502,871	83,794	-	-	-	-
Grants receivable (note 2)	-	511,135	4,925,000	-	-	-
Note receivable	-	-	-	-	-	35,375
Pledges receivable (net of \$7,200 allowance - current general fund)	19,903	10,000	295,858	-	-	-
Inventories, at lower of cost or market	33,376	231,684	-	-	-	-
Prepaid expenses and deferred charges	42,861	40,245	-	-	-	-
Investments (quoted market, \$16,221,126) - (note 3)	-	-	-	-	-	12,435,608
Due from other funds	-	339,258	616,365	-	-	540,724
Equipment - visitor facilities, at cost (net of accumulated depreciation of \$520,860) - (note 4)	-	-	-	328,596	-	-
Other land, buildings, animals and equipment (note 4)	-	-	-	5	-	-
Total assets	<u>\$ 1,156,018</u>	<u>1,241,166</u>	<u>5,846,793</u>	<u>328,601</u>	<u>13,068,434</u>	
Liabilities and fund balances:						
Accounts payable and accrued expenses	447,929	42,944	3,838	-	-	-
Deferred revenue - contributions pledged for future years' operations	19,903	10,000	-	-	-	-
Due to other funds	1,496,347	-	-	-	-	-
Fund balances (deficit) - (Exhibit C):						
General fund	(808,161)	-	-	-	-	-
Restricted	-	1,188,222	-	-	-	-
Unexpended land, buildings, animals and equipment	-	-	5,842,955	-	-	-
Investment in land, buildings, animals and equipment	-	-	-	328,601	-	-
Endowment	-	-	-	-	-	2,826,916
Funds functioning as endowment	-	-	-	-	-	10,241,518
Total liabilities and fund balances	<u>\$ 1,156,018</u>	<u>1,241,166</u>	<u>5,846,793</u>	<u>328,601</u>	<u>13,068,434</u>	

See accompanying notes to financial statements.

SUMMARY OF FINANCIAL ACTIVITIES

Year Ended December 31, 1972

Exhibit B

Revenues:			
Fees and grants from governmental units			\$ 2,603,354
Program service fees and other revenue			1,276,666
Income from visitor facilities (after deducting \$1,582,414 of directly related costs and expenses)			745,914
Investment income			389,419
Membership dues			197,873
Miscellaneous			<u>24,552</u>
Total revenues			5,237,778
Support from the public - contributions, grants and bequests			<u>1,425,498</u>
Total revenues and support			6,663,276
Deduct revenues and support limited by donors (Exhibit C):			
Currently expendable, but only as specified by agreement	\$ 4,583,693		
Construction and acquisition of land, buildings, animals and equipment		<u>680,396</u>	
Total limited revenues and support			<u>5,264,089</u>
Amount available to finance current general expenditures			1,399,187
Expenditures:			
Program services	4,875,509		
Supporting services	593,022		
Major acquisitions of land, buildings, animals and equipment		<u>1,955,398</u>	
Total expenditures		7,423,929	
Deduct expenditures financed by special funds (Exhibit C):			
Current restricted funds	\$ 3,805,620		
Unexpended land, buildings, animals and equipment funds		<u>1,955,398</u>	<u>5,761,018</u>
Expenditures financed by current general revenues and support			<u>1,662,911</u>
Excess of current general expenditures over related revenues and support			263,724
Deduct transfers:			
To unexpended land, buildings, animals and equipment funds - net income from aquarium's visitor facilities		185,152	
To funds functioning and endowment - contributions designated by Trustees for general development		<u>359,285</u>	<u>544,437</u>
Decrease in current general fund (Exhibit C)			<u>\$ 808,161</u>

See accompanying notes to financial statements.

STATEMENT OF CHANGES IN FUND BALANCES

Year ended December 31, 1972

Exhibit C

	<u>Current funds</u>		<u>Land, buildings, animals and equipment funds</u>		<u>Equity in land, buildings, animals and equipment</u>	<u>Endowment funds and funds functioning as endowment</u>	<u>Funds functioning as endowment</u>
	<u>General</u>	<u>Restricted</u>	<u>Unexpended</u>	<u>equipment</u>	<u>Endowment</u>	<u>as endowment</u>	<u>as endowment</u>
Balance(deficit)at beginning of year	\$ (784,303)	1,285,599	6,136,735	344,679	2,446,024		9,295,772
Additions:							
Current revenue, expendable only as specified by agreement	-	4,570,187	-	-	-	-	-
Contributions, grants and appro- priations for unexpended land, buildings, animals and equipment fund	-	-	628,336	-	-	-	-
Investment income	-	13,506	19,144	-	-	-	-
Equipment acquisitions	-	-	-	22,118	-	-	-
Gain on disposal of investments, net	-	-	-	-	380,892		1,447,680
Other	-	-	32,916	-	-	-	-
Total additions	-	4,583,693	680,396	22,118	380,892		1,447,680
Deductions:							
Decrease in current general fund (Exhibit B)	808,161	-	-	-	-	-	-
To finance expenditures of current funds	-	3,805,620	-	-	-	-	-
Indirect costs recovered on research grants	-	127,253	-	-	-	-	-
Amounts expended for land, buildings, animals and equipment	-	-	1,955,398	-	-	-	-
Provision for depreciation (note 4)	-	-	-	38,196	-	-	-
Other	-	14,418	-	-	-	-	14,625
Total deductions	808,161	3,947,291	1,955,398	38,196	-	-	14,625
Transfers between funds	784,303*	(733,779)	981,222	-	-	-	(487,309)
Balance (deficit) at end of year	\$ (808,161)	1,188,222	5,842,955	328,601	2,826,916		10,241,518

* Current general fund transfers are reported on Exhibit B, except for this sum representing the deficit at the beginning of the year appropriated from funds functioning as endowment.

See accompanying notes to financial statements.

NOTES TO FINANCIAL STATEMENTS

December 31, 1972

(1) Summary of Significant Accounting Policies:

The Society follows the standards of accounting and financial reporting for voluntary health and welfare organizations developed by the National Health Council and the National Assembly for Social Policy and Development. Accordingly, the financial statements have been prepared on the accrual basis of accounting and include all material accounts receivable and payable, prepaid expenses, deferred charges and credits and all other receivables and payables of importance.

In order to ensure observance of limitations and restrictions placed on the use of the available resources, the accounts and financial activities are classified for accounting and reporting purposes into fund groups that are in accordance with activities or objectives specified. Separate accounts are maintained for each fund; however, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups. Accordingly, all financial transactions have been recorded and reported by fund group.

The current fund balance restricted by outside sources is so indicated and is distinguished from the current general fund. Externally restricted funds may only be utilized in accordance with the purposes established by the source of such funds and are in contrast with the current general fund over which the governing board retains full control to use in achieving any of its purposes.

Endowment funds are subject to the restrictions of gift instruments requiring in perpetuity that the principal be invested and the income only be utilized. While funds functioning as endowment have been established by the governing board for the same purposes as endowment funds, any portion of such funds may be expended.

All gains and losses arising from the sale, collection or other disposition of investments and other noncash assets are accounted for in the fund which owned such assets. Income derived from investments of endowment funds and funds functioning as endowment is accounted for in the fund to which it is restricted or, if unrestricted, as revenues in the current general fund.

All other unrestricted revenues are accounted for in the current general fund. Restricted contributions, grants and bequests are accounted for in the appropriate restricted funds.

Other significant accounting policies are set forth in the financial statements and the following notes.

(2) Grants Receivable:

Grants receivable of the current restricted and unexpended land, buildings, animals and equipment funds represent amounts pledged to the Society for certain operations and for the completion of designated projects in future years. The grants will be collected as expenditures for the designated projects are made by the Society.

(3) Investments:

Investments are stated at cost or, if acquired by gift, at fair market value at dates of acquisition.

(4) Land, Buildings, Animals and Equipment:

Equipment of the visitor facilities in use at December 31, 1972 is being written off over its estimated useful life on a straight-line basis.

Expenditures for land, buildings, animals and equipment have been charged to operations and to unexpended land, buildings, animals and equipment funds. However, only the cost of equipment of the visitor facilities has been capitalized in the equity in land, buildings, animals and equipment. Other such assets including, but not limited to, the following are recorded in this fund at the nominal value of \$5.

National collection of heads and horns,
art gallery, library and sundry items
Collection of living animals

Coney Island real estate
Land and buildings made available by the
City of New York

(5) Commitments:

The New York Zoological Society and the City of New York have agreed to construct an aquarium, as funds become available, at an estimated total cost (to be shared equally) of \$7,100,000, of which the initial stage (of approximately \$1,550,000) was completed May 31, 1957.

(6) Pension Plan:

There are two pension plans, covering substantially all of the Society's full-time employees. The total pension expense for 1972 was \$158,410. The Society's policy is to fund pension cost accrued, and no unfunded past service cost or unfunded vested benefits existed at December 31, 1972. The assets of the pension fund approximated \$3,500,000 at market at December 31, 1972.

(7) Other:

The Society is the ultimate beneficiary under a trust held by Community Funds, Inc. of New York, N. Y. The income arising from the investments of the principal sum is paid to the Society for current restricted purposes.

The Board of Trustees
New York Zoological Society:

We have examined the balance sheet of New York Zoological Society as of December 31, 1972 and the related summary of financial activities and statement of changes in fund balances for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, except for the valuation of certain fixed assets as described in note 4 of notes to financial statements, the accompanying financial statements present fairly the financial position of New York Zoological Society at December 31, 1972 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Leat, Marwich, Mitchell 120

March 26, 1973

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(To the extent provided by law, contributions to the society
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